

AMENDMENTS TO THE CLAIMS

Listing of claims:

1. (Currently Amended) A method of determining, using an active contour model, a sought object contour in a digital microscope image, which includes a plurality of image elements and reproduces a biological material, the method comprising:

assigning edge values to at least a first subset of the image elements in the image;

assigning values of a first gradient vector component whose values each comprise a first linear combination of edge values of some surrounding image elements to at least a second subset of the image elements in the image, wherein the first linear combination corresponds to, in arbitrary order, a differentiation in one direction in the image plane and a filtering in the image plane with the inverse of a 3 by 3 filter, the filter corresponding to a filtering with a weighted combination of a Laplace filter and a unity filter;

assigning values of a second gradient vector component whose values each comprise a second linear combination of edge values of some surrounding image elements to at least a third subset of the image elements in the image, wherein the second linear combination corresponds to, in arbitrary order, a differentiation in another direction in the image plane and a filtering in the image plane with the inverse of a 3 by 3 filter, the filter corresponding to a filtering with a weighted combination of a Laplace filter and a unity filter; and

calculating an estimate of the sought object contour based upon values of the first and the second gradient vector components.

2. (Cancelled)

3. (Cancelled)

4. (Original) A method as claimed in claim 1, wherein the first and the second linear combinations are calculated using Fourier transform.

5. (Currently Amended) An arrangement for determining, using an active contour model, a sought object contour in a digital microscope image, which includes a plurality of image elements and reproduces a biological material, the arrangement comprising:

means for assigning edge values to at least a first subset of the image elements in the image;

means for assigning values of a first gradient vector component whose values each comprise a first linear combination of edge values of some surrounding image elements to at least a second subset of the image elements in the image, wherein the first linear combination corresponds to, in arbitrary order, a differentiation in one direction in the image plane and a filtering in the image plane with the inverse of a 3 by 3 filter, the filter corresponding to a filtering with a weighted combination of a Laplace filter and a unity filter;

means for assigning values of a second gradient vector component whose values each comprise a second linear combination of edge values of some surrounding image elements to at least a third subset of the image elements in the image, wherein the second linear combination corresponds to, in arbitrary order, a differentiation in another direction in the image plane and a filtering in the image plane with the inverse of a 3 by 3 filter, the filter corresponding to a filtering with a weighted combination of a Laplace filter and a unity filter; and

means for calculating an estimate of the sought object contour based upon values of the first and the second gradient vector components.

6. (Currently Amended) A digital storage computer readable medium including encoded with a computer program for determining a sought object contour in a digital microscope image, which includes a plurality of image elements and reproduces a biological material, when executed on the computer, the program being adapted to cause the computer to perform the following:

assigning edge values to at least a first subset of the image elements in the image;

assigning values of a first gradient vector component whose values each comprise a first linear combination of edge values of some surrounding image elements to at least a second subset of the image elements in the image, wherein the first linear combination corresponds to, in arbitrary order, a differentiation in one direction in the image plane and a filtering in the image plane with the inverse of a 3 by 3 filter, the filter corresponding to a filtering with a weighted combination of a Laplace filter and a unity filter;

assigning values of a second gradient vector component whose values each comprise a second linear combination of edge values of some surrounding image elements to at least a third subset of the image elements in the image, wherein the second linear combination corresponds to, in arbitrary order, a differentiation in another direction in the image plane and a filtering in the image plane with the inverse of a 3 by 3 filter, the filter corresponding to a filtering with a weighted combination of a Laplace filter and a unity filter; and

calculating an estimate of the sought object contour based upon values of the first and the second gradient vector components.

7. (Currently Amended) A method as claimed in claim 25, wherein the first and the second linear combinations are calculated using Fourier transform.

8. (Currently Amended) A method as claimed in claim 36, wherein the first and the second linear combinations are calculated using Fourier transform.